

NOAA COASTAL OCEAN PROGRAM
Decision Analysis Series No. 2



**TECHNOLOGY AND SUCCESS IN RESTORATION,
CREATION, AND ENHANCEMENT OF *SPARTINA*
ALTERNIFLORA MARSHES IN THE UNITED STATES**
Volume 2 -- Inventory and Human Resources Directory

Geoffrey A. Matthews
Thomas J. Minello

NOAA National Marine Fisheries Service
Southeast Fisheries Science Center
Galveston Laboratory
4700 Avenue U
Galveston, TX 77551

August 1994

U.S. DEPARTMENT OF COMMERCE
Ronald H. Brown, Secretary
National Oceanic and Atmospheric Administration
D. James Baker, Under Secretary
Coastal Ocean Office
Donald Scavia, Director

This publication should be cited as:

Matthews, Geoffrey A. and Thomas J. Minello. 1994. Technology and Success in Restoration, Creation, and Enhancement of *Spartina alterniflora* Marshes in the United States. Vol. 2 – Inventory and Human Resources Directory. NOAA Coastal Ocean Program Decision Analysis Series No. 2. NOAA Coastal Ocean Office, Silver Spring, MD.

This publication does not constitute an endorsement of any commercial product or intend to be an opinion beyond scientific or other results obtained by the National Oceanic and Atmospheric Administration (NOAA). No reference shall be made to NOAA, or this publication furnished by NOAA, in any advertising or sales promotion which would indicate or imply that NOAA recommends or endorses any proprietary product mentioned herein, or which has as its purpose an interest to cause directly or indirectly the advertised product to be used or purchased because of this publication.

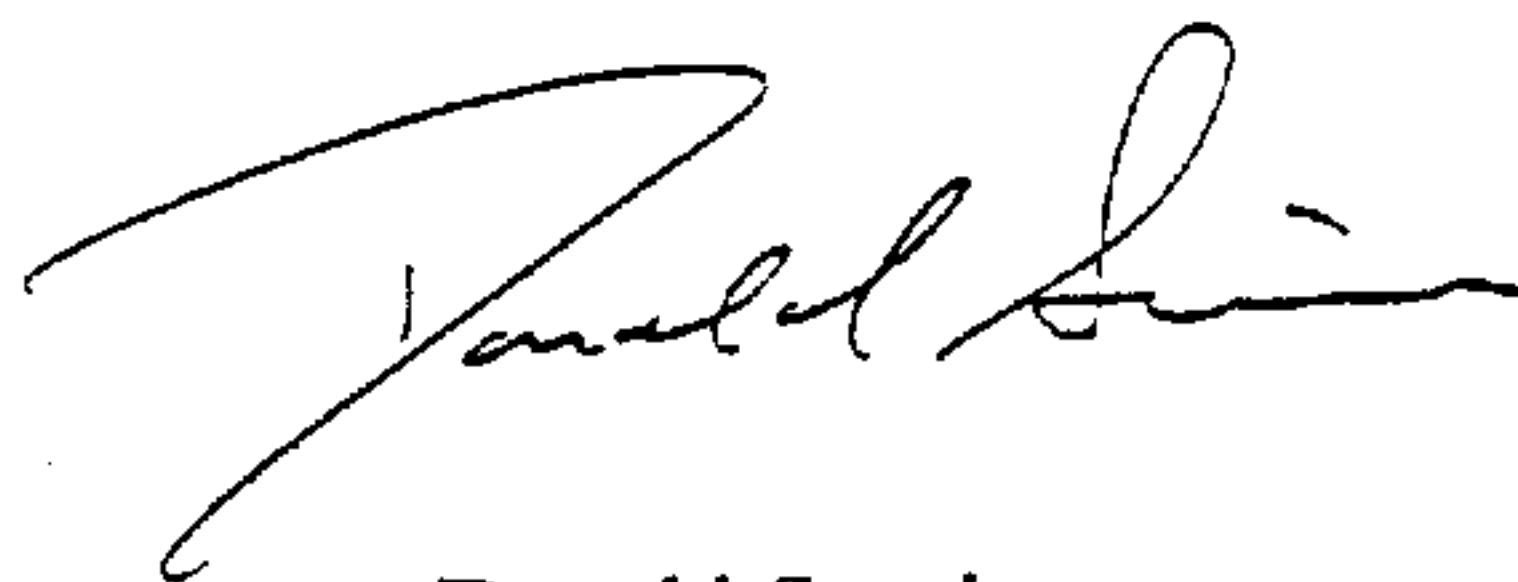
Note to Readers

The NOAA Coastal Ocean Program (COP) provides a focal point through which the agency, together with other organizations with responsibilities for the coastal environment and its resources, can make significant strides toward finding solutions to critical problems. By working together toward these solutions, we can ensure the sustainability of these coastal resources and allow for compatible economic development that will enhance the well-being of the Nation now and in future generations. The goals of the program parallel those of the NOAA Strategic Plan for 1995-2005.

A specific objective of COP is to provide the highest quality scientific information to coastal managers in time for critical decision making and in a format useful for these decisions. To help achieve this, COP inaugurated a program of developing documents that would synthesize information on issues that were of high priority to coastal managers. To develop such documents, a three-step process was used: 1) to compile a list of critical topics in the coastal ocean through a survey of coastal resource managers and to prioritize and select those suitable for the document series through the use of a panel of multidisciplinary technical experts; 2) to solicit proposals to do research on these topics and select principal investigators through a rigorous peer-review process; and 3) to develop peer-reviewed documents based on the winning proposals.

Seven topics and associated principal investigators were selected in the initial round. *Technology and Success in Restoration, Creation, and Enhancement of Spartina alterniflora Marshes in the United States* by Geoffrey A. Matthews and Thomas J. Minello of the NOAA National Marine Fisheries Service's Galveston Laboratory is the second document in this Decision Analysis Series to be published and is presented in two volumes. Information on Decision Analysis Series No. 1 is shown on the inside back cover. Other volumes will be published over the next two years on the following topics: seagrass restoration technology, coastal watershed restoration, restoring streams and anadromous fish habitat affected by logging, eutrophication and phytoplankton blooms, and management of cumulative coastal environmental impacts.

As with all of its products, COP is very interested in ascertaining the utility of the Decision Analysis Series particularly in regard to its application to the management decision process. Therefore, we encourage you to write, fax, call, or Internet us with your comments. Please be assured that we will appreciate these comments, either positive or negative, and that they will help us direct our future efforts. Our address and telephone and fax numbers are on the inside front cover. My Internet address is DSCAVIA@HQ.NOAA.GOV.



Donald Scavia
Director
NOAA Coastal Ocean Program

Foreword

Coastal wetlands are important habitats for many estuarine-dependent fishery species, and the productivity of these fisheries may well depend upon the health of wetland ecosystems. The low elevation wetlands on the Atlantic and Gulf of Mexico coasts of the United States are generally dominated by smooth cordgrass, *Spartina alterniflora*, and these salt marshes have been identified as valuable nursery habitats for many fishes and crustaceans. Coastal development, sea level rise, and land subsidence, however, have resulted in extensive losses of *S. alterniflora* habitat in the United States. Efforts to reduce the rate of wetland loss will likely require a continuation and expansion of programs to restore and create salt marshes in regions of deteriorating coastal wetlands. These restoration projects frequently involve establishment of marsh vegetation on graded-down uplands or on dredged material. Although many of the early efforts have failed, the technology for successfully establishing salt marsh vegetation by seeding and transplanting have now been developed for a variety of coastal conditions.

Salt marshes have long been built to reduce shoreline erosion and stabilize dredged material deposits. These projects have not inherently attempted to establish complete functional equivalence with natural marshes, and physically establishing the macrophytic vegetation has been the criteria used for determining success. When the goal of salt marsh creation becomes the replacement of a natural marsh, however, the entire suite of marsh functions must be considered. Replacing or creating vegetative cover is the first step in creating a functional salt marsh. Establishment of habitat functions such as providing a supportive food web, protection from predators, and reproductive sites for estuarine animals apparently requires more time than the establishment of macrophytes alone. Under some conditions, these habitat functions may never fully develop, and food webs of created salt marshes may never support fisheries organisms and other wildlife to the same extent as in natural marshes. The evidence for retarded functional development of created salt marshes has raised serious questions about the relative value of these habitats. Information on the establishment of salt marsh functions other than substrate stabilization is also more difficult to obtain and requires an understanding of how natural salt marsh systems function.

Our objectives in developing this database of created *Spartina alterniflora* marshes were: 1) to form a register of the marshes and estimate the number and

location of these marshes, 2) to determine how many of these marshes have been monitored for functional success and animal utilization, 3) to develop an inexpensive and easy-to-use data base and entry system to track future restoration/creation activities, 4) to promote via this database a greater awareness of the impacts of altering coastal wetlands and the need for full ecologically functional replacement.

Companion products from our Coastal Ocean Program project may also be of some value to users of this Inventory. These include a Directory of Human Resources in this volume and an Annotated Bibliography which appears in Volume 1. The information in these companion products was used extensively in creating this salt marsh inventory.

VOLUME 2

**SECTION II -- INVENTORY OF
RESTORED, CREATED, AND ENHANCED
SPARTINA ALTERNIFLORA MARSHES IN
THE UNITED STATES**

**SECTION III -- DIRECTORY OF HUMAN
RESOURCES**

SECTION II

AN INVENTORY OF RESTORED, CREATED, AND ENHANCED *SPARTINA ALTERNIFLORA* MARSHES IN THE UNITED STATES

Table of Contents

Section II -- Inventory

FOREWORD	iii
DATABASE	1
Data collection and limitations	1
Database structure	2
PRIMARY MARSHES	5
Connecticut	5
Delaware	10
Florida	17
Maine	104
Maryland	107
Massachusetts	127
New Jersey	128
New York	145
North Carolina	147
South Carolina	148
Texas	149
Virginia	229
MARSHES WITH MINIMAL INFORMATION	237
Alabama	237
Connecticut	238
Delaware	238
Florida	239
Georgia	247
Louisiana	248
Maine	257
Maryland	257
Massachusetts	283
Mississippi	283
New Hampshire	283
New Jersey	284
New York	285
North Carolina	286
Rhode Island	288
South Carolina	288

Texas	291
Virginia	297

Database

Data collection and limitations

In the development of this inventory, we utilized four major sources of information on restored and created *Spartina alterniflora* marshes, including 1) contractors who build the marshes, 2) research personnel who study marshes, 3) state agencies that monitor wetlands and marsh mitigation, and 4) federal agencies that monitor marshes or marsh organisms. We contacted contractors throughout the United States for information about restored, enhanced, or created *Spartina alterniflora* marshes that they had a role in building. We also reviewed information on created marshes from publications, reports, conference presentations, and even assorted notes obtained from consultants, contractors, and other research personnel working in this field. State environmental and fisheries agencies were consulted for their records about man-made salt marshes. We also contacted the offices of the U.S. Army Corps of Engineers (COE), Soil Conservation Service (SCS), U.S. Fish and Wildlife Service, and National Marine Fisheries Service (NMFS) for information about man-made *Spartina alterniflora* marshes in their respective areas of the coast.

For the most part, the people we contacted in the field of restoration science were receptive toward our requests and provided the available information. Often, however, data on salt marsh construction projects were never originally recorded, were incomplete or in some inappropriate format, were not readily available with a reasonable search effort, or were not entered into electronic files. The permitting process of the COE and the permit review records of the National Marine Fisheries Service Southeast Regional offices provided information on numerous marsh creation projects. Some projects that were issued COE permits, however, were not located, and it is unclear whether these marshes were failures or had never been constructed. In addition, we obtained some information from design or initial work plans for projects, and these plans may not always have been identical to the characteristics of the marsh actually planted.

Information on created *Spartina alterniflora* marshes on the West Coast was not recorded. A few *Spartina alterniflora* marshes were planted in West Coast estuaries several decades ago, but this species is no longer used in restoration/creation projects. *Spartina alterniflora* is considered an invasive exotic species on the West

coast, where it has spread rapidly, often out competing the native species, *Spartina foliosa*.

This inventory is intended to be dynamic. Over time, we anticipate that users of the inventory will identify new marshes and provide additional information on included marshes. We would like to encourage this type of input, and we hope that users will help make the inventory a more valuable resource for everyone working in the field of salt marsh creation and restoration. Therefore, corrections and additions are solicited and can be sent to the authors at the address on the cover page.

Database structure

During the course of our one year investigation we identified 787 marshes that were either planned, created, restored, or enhanced along coastal bays and estuaries from Maine to Texas. Each marsh was assigned a unique identification number when the data were entered into the electronic data file. The records are sorted alphabetically first by state, second by county, and third by bay in which the marshes were located. The database was constructed using Microsoft's Excel software and is also available on diskette as an Excel file. Excel was chosen because it was available for both IBM (and compatibles) and Macintosh computers and is fairly easy to use. All 787 marshes are included in the electronic data file.

Printed output was generated from the Excel database file and includes all marshes, but marsh information was presented in two forms to save space. Primary Marshes were identified on the basis of the information content in the database; the exact location of these marshes is known (INFO RANK of 3, 4, 5 and RTE, see below). All information available in the database is listed for each Primary Marsh. For marshes with minimal information (INFO RANK of 1 and 2), only a brief description is given.

The database has 22 variables to identify and characterize each marsh. These variables are:

<u>Variables</u>	<u>Specifications</u>
1) ID	A unique reference number to identify the marsh; given when the data were entered into the inventory database.
2) INFO RANK	Each planted marsh was ranked from 1-5 based on the amount of available information. 1=A COE permit was granted that required a marsh be created. It is unknown if the marsh was created. 2=A marsh was planted. The age and general location are known, but the exact location of the planting is unknown. 3=A marsh was planted and its specific location is known, but no assessments of its growth and functions were made. 4=A marsh was planted and was evaluated as to attainment of a 70% vegetative cover within two years after planting. 5=A marsh was planted, was successfully established, and was assessed for its utilization by animals. An RTE (restored tidal exchange) in this space indicates an area was opened to tidal exchange and a <i>Spartina alterniflora</i> marsh became established, though it was not planted.
3) STATE	State where the marsh is located.
4) COUNTY	County or parish where the marsh is located.
5) BAY	The body of water where the marsh is located; include bay, sub-bay, cove, river and creek when applicable.
6) ORIGINATOR	Who paid to have the marsh built. Includes name, address and telephone if available.
7) COE NO	U.S. Army Corps of Engineers permit number for a mitigation marsh.
8) PERMIT DATE	Month and year of the permit.
9) LOCATION	Directions to the actual site with identifying features of the marsh.

- | | |
|------------------------------|---|
| 10) LAT | Degree, minutes, and seconds where the marsh is located. |
| 11) LONG | Degree, minutes, and seconds where the marsh is located. |
| 12) DATE PLANTED | The month and year when the marsh planting was completed. |
| 13) ACRES | Area of the marsh. |
| 14) HECTARES | Area of the marsh. |
| 15) SOURCE PLANTING | Who supplied the information about the planting; includes name, address and telephone number when available, or a literature citation (intext style). |
| 16) SOURCE ASSESS | Name, address and telephone number of the person when available; or a literature citation (intext style). |
| 17) REFS | Literature citation(s) or person who knows about the marsh (address and telephone number if known). |
| 18) OTHER SPP PLANTED | List species that were planted along with the <i>Spartina alterniflora</i> .. |
| 19) COVER | Visual estimation of the area of the marsh covered by <i>S. alterniflora</i> , and the month and year when the percentage was determined. |
| 20) ANIMAL USE | Yes or no. If yes, include reference. and which animals or animal groups were studied. |
| 21) COM1 | Include any pertinent information about how this marsh was constructed, or how successful it was. |
| 22) COM2 | Additional information that would not fit in the first comments box, or that you want separated. Marsh name generally included here. |

Primary Marshes

Marsh Inventory No.: 661 **Information Rank (1-5):** RTE **State:** CT

Date Planted: 1979

Area Planted (1acre = 0.4047 ha): 52.611 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit:

Location of the marsh.

State: CT **County:** Fairfield **Latitude (N):** 41 07' **Longitude (W):** 73 15'

Bay and sub-bays: Long Island Sound; Pine Creek

Directions to the site: Exit I-95 and exit 20, take Post Rd. Go south on S. Pine Creek Rd. to Oldfield or Old Dam Rd, go east.

Source of planting information: Mr. Thomas J. Steinke, Conservation Commission - Town of Fairfield, Independence Hall, 725 Old Post Road, Fairfield, CT 06430, (203) 256-3071

Source of subsequent assessment information: John Trautman, Biol. Dept. Fairfield Univ. (203) 268-5103

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- No *Spartina alterniflora* planted, but the area was opened to more tidal exchange and *S. alterniflora* became established.

Marsh Inventory No.: 660 **Information Rank (1-5):** RTE **State:** CT

Date Planted: 1974

Area Planted (1acre = 0.4047 ha): 5.666 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit:

Location of the marsh.

State: CT **County:** **Latitude (N):** **Longitude (W):**

Bay and sub-bays: Ash Creek

Directions to the site:

Source of planting information: Mr. Thomas J. Steinke, Conservation Commission
- Town of Fairfield, Independence Hall, 725 Old Post Road, Fairfield, CT 06430, (203)
256-3071

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Phragmites*

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- No *Spartina alterniflora* planted, but the area was opened to more tidal exchange and *S. alterniflora* became established.

Marsh Inventory No.: 663 **Information Rank (1-5):** RTE **State:** CT

Date Planted: 1990

Area Planted (1acre = 0.4047 ha): 60.705 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit:

Location of the marsh.

State: CT **County:** **Latitude (N):** **Longitude (W):**

Bay and sub-bays: Great Creek

Directions to the site: Milford, CT; in the state park.

Source of planting information: Mr. Thomas J. Steinke, Conservation Commission
- Town of Fairfield, Independence Hall, 725 Old Post Road, Fairfield, CT 06430, (203)
256-3071

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- No *Spartina alterniflora* planted, but the area was opened to more tidal exchange and *S. alterniflora* became established.

Marsh Inventory No.: 662 **Information Rank (1-5):** RTE **State:** CT

Date Planted: 1982

Area Planted (1acre = 0.4047 ha): 12.141 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit:

Location of the marsh.

State: CT **County:** **Latitude (N):** **Longitude (W):**

Bay and sub-bays: Sasco Creek

Directions to the site:

Source of planting information: Mr. Thomas J. Steinke, Conservation Commission
- Town of Fairfield, Independence Hall, 725 Old Post Road, Fairfield, CT 06430, (203)
256-3071

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

-
-

Marsh Inventory No.: 659 **Information Rank (1-5):** RTE **State:** CT

Date Planted: 1973

Area Planted (1acre = 0.4047 ha): 6.475 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit:

Location of the marsh.

State: CT **County:** **Latitude (N):** **Longitude (W):**

Bay and sub-bays: Turney Creek

Directions to the site:

Source of planting information: Mr. Thomas J. Steinke, Conservation Commission
- Town of Fairfield, Independence Hall, 725 Old Post Road, Fairfield, CT 06430, (203)
256-3071

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Phragmites*

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- No *Spartina alterniflora* planted.
-

Marsh Inventory No.: 346 Information Rank (1-5): 3 State: DE

Date Planted: 05/01/92

Area Planted (1acre = 0.4047 ha): 0.202 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit: US EPA Region III

Location of the marsh.

State: DE County: Kent Latitude (N): 39 07' 15" Longitude (W): 75 29' 30"

Bay and sub-bays: Delaware Bay; St. Jones River

Directions to the site: Take Rt. 13 north. Turn right onto Delaware Rt.10 northbound. Turn right onto Old Lebanon Road, after 500 ft. take the dirt road that bears left to the entrance of the landfill. The site is along the Wildcat Landfill on the St. Jones River.

Source of planting information: Dr. Edgar Garbisch, Environmental Concern, Inc., P.O.Box P, St. Michaels, MD 21663, (410) 745-9620

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- *Spartina alterniflora* was planted on 2-ft centers. Marsh shape: tidal pond, shoreline. Built by Environmental Concern, Inc. Interagency Agreement # DW96934592-0. This was an EPA hazardous waste site clean-up project.
- Marsh name: Wildcat Landfill.

Marsh Inventory No.: 313 Information Rank (1-5): 3 State: DE

Date Planted: 07/01/85

Area Planted (1acre = 0.4047 ha): 1.214 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit: DE DOT, Office of Administration

Location of the marsh.

State: DE County: New Castle Latitude (N): 39 05' 50" Longitude (W): 75 27' 23"

Bay and sub-bays: Delaware Bay; St. Jones River

Directions to the site: Along each side of US Hwy 113 for about 1 km N of the bridge at Barkers Landing.

Source of planting information: Dr. Edgar Garbisch, Environmental Concern, Inc., P.O.Box P, St. Michaels, MD 21663, (410) 745-9620

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- *Spartina alterniflora* was planted on 2-ft centers. Marsh shape: rectangular, long. Built by Environmental Concern, Inc. FHWA Project # F-10005(11). DEDOT Contract # 82-109-04.

- This was a restoration after removal of a temporary access road along the Rt. 113 bridge at the St. Joans River. Marsh name: DE Route 113.

Marsh Inventory No.: 333 **Information Rank (1-5):** 3 **State:** DE

Date Planted: 05/01/83

Area Planted (1acre = 0.4047 ha): 0.243 hectares

COE Permit No.: NAPOP-R-83-0093-C **Date of COE Permit:** 1983

Originator or Applicant for permit: William K. McMahon, Rd. 2, Box 237, Lewes, DE 19958

Location of the marsh.

State: DE **County:** Sussex **Latitude (N):** 38 41' 35" **Longitude (W):** 75 04' 15"

Bay and sub-bays: Atlantic Ocean; Rehobeth Bay; Head of Bay Cove.

Directions to the site: Bay shore infront of wooden bulkhead on property due W of Bayard Ave. at New Orleans St., Dewey Beach, DE.

Source of planting information: Dr. Edgar Garbisch, Environmental Concern, Inc., P.O.Box P, St. Michaels, MD 21663, (410) 745-9620

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Spartina patens*

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- *Spartina alterniflora* was planted on 2-ft centers. Marsh shape: irregular. Built by Environmental Concern, Inc.
- Marsh name: Dewey Beach.

Marsh Inventory No.: 314 **Information Rank (1-5):** 3 **State:** DE

Date Planted: 04/01/87

Area Planted (1acre = 0.4047 ha): 0.526 hectares

COE Permit No.: NAPOP-R-DV84-081 **Date of COE Permit:** 1984

Originator or Applicant for permit: Jerry Adkins real estate, Selbyville, DE 19975 (302) 436-5981.

Location of the marsh.

State: DE **County:** Sussex **Latitude (N):** 38 27' 38" **Longitude (W):** 75 05' 00"

Bay and sub-bays: Assawoman Bay; Fenwick Sound, Roy Creek

Directions to the site: Fenwick Island off East Stoney Run.

Source of planting information: Dr. Edgar Garbisch, Environmental Concern, Inc., P.O.Box P, St. Michaels, MD 21663, (410) 745-9620

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- *Spartina alterniflora* was planted on 2-ft centers. Marsh shape: rectangular.
- Built by Environmental Concern, Inc. This was a restoration required in a consent order.
- Marsh name: Keenwick Sound.

Marsh Inventory No.: 328 **Information Rank (1-5):** 3 **State:** DE

Date Planted: 06/01/89

Area Planted (1acre = 0.4047 ha): 1.052 hectares

COE Permit No.: NAPOR-85-1107-1 **Date of COE Permit:** 1985

Originator or Applicant for permit: Gray Farms Partnership

Location of the marsh.

State: DE **County:** Sussex **Latitude (N):** 38 28' 22" **Longitude (W):** 75 06' 30"

Bay and sub-bays: Assawoman Bay; Fenwick Sound, Roy Creek

Directions to the site: Adjacent to a tributary of Roy Creek on a tract of land formerly known as Gray Farm, along the north side of Rt. 54 immediately west of Treasure Beach Campground, near Bayville, Sussex County, DE.

Source of planting information: Dr. Edgar Garbisch, Environmental Concern, Inc., P.O.Box P, St. Michaels, MD 21663, (410) 745-9620

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- *Spartina alterniflora* was planted on 2-ft centers. Marsh shape: tidal pond, shoreline. Built by Environmental Concern, Inc. DE Wetlands Permit # 5P-0710/84 and WE-1609/85.

- Marsh name: Mallard Lakes.

Marsh Inventory No.: 338 **Information Rank (1-5):** 3 **State:** DE

Date Planted: 05/01/89

Area Planted (1acre = 0.4047 ha): 0.121 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Bay Colony Marina

Location of the marsh.

State: DE **County:** Sussex **Latitude (N):** 38 34' 58" **Longitude (W):** 75 09' 25"

Bay and sub-bays: Atlantic Ocean; Indian River Bay

Directions to the site: Along the sides of a small inlet and basin just 0.5 km SW of Grays Point on the S shore of Indian River Bay about 2 km N of Blackwater Village.

Source of planting information: Dr. Edgar Garbisch, Environmental Concern, Inc., P.O.Box P, St. Michaels, MD 21663, (410) 745-9620

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- *Spartina alterniflora* was planted on 2-ft centers. Marsh shape: shoreline. Built by Environmental Concern, Inc.
- Marsh name: Bay Colony.

Marsh Inventory No.: 298 **Information Rank (1-5):** 3 **State:** DE

Date Planted: 06/01/81

Area Planted (1acre = 0.4047 ha): 2.792 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: US Army COE, Philadelphia District

Location of the marsh.

State: DE **County:** Sussex **Latitude (N):** 38 37' 35" **Longitude (W):** 75 05' 30"

Bay and sub-bays: Atlantic Ocean; Indian River Bay.

Directions to the site: On bay-side of an island that is 1 km SE of Bluff Point, where Rehoboth Bay narrows to connect with Indian River Bay.

Source of planting information: Dr. Edgar Garbisch, Environmental Concern, Inc., P.O.Box P, St. Michaels, MD 21663, (410) 745-9620

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- *Spartina alterniflora* was planted on 2-ft centers. Marsh shape: irregular. Built by Environmental Concern, Inc. COE Contract # DACW61-81-C-0062.
- Marsh name: Indian River.

Marsh Inventory No.: 748 Information Rank (1-5): 4 State: FL

Date Planted: 09/01/93

Area Planted (1acre = 0.4047 ha): 1.670 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Brevard Latitude (N): 28 11' Longitude (W): 80 37'

Bay and sub-bays: Banana River

Directions to the site: Satellite Beach; 4 miles N of Eau Gallie Causeway, entry road from South Patrick Drive. Perimeter marsh along E, W and S sides of old spoil island.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Paspalum vaginatum* and *Distichlis spicata* were planted on 2-ft centers; mangroves were planted on 4-ft centers.

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? No

General comments about the marsh:

- Freshly planted in Sept-Dec 1993; appears to be doing well, no mortality as of Feb 1994. *Spartina alterniflora* clumps were planted on 2-ft centers.
- Marsh name: Lansing Island

Marsh Inventory No.: 749 Information Rank (1-5): 4 State: FL

Date Planted: 05/01/93

Area Planted (1acre = 0.4047 ha): 5.260 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Brevard Latitude (N): 28 8' 30" Longitude (W): 80 36' 30"

Bay and sub-bays: Banana River

Directions to the site: Melbourne; access by boat only, N of Eau Gallie Causeway; created wetlands consisting of excavated tidal creeks and tidal flats. Entire W side of island returned to wetland elevations.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Paspalum vaginatum*, *Sporobolus virginicus*, and *Batis maritima* were planted on 2-ft centers.

Percent vegetative cover attained by the planted marsh: 85% cover, 95% survival; no die back seen after 6 mo. Dec-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? No

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 2-ft centers beginning in May and continuing through Dec 1993. Marsh appears to be doing well, no mortality as of Feb 1994.

- Marsh name: Samson Island

Marsh Inventory No.: 751 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 09/01/86

Area Planted (1acre = 0.4047 ha): 1.670 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: David McWilliams (407)777-4111 is the contact person

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 11' **Longitude (W):** 80 37'

Bay and sub-bays: Banana River

Directions to the site: Satellite Beach; 3.5 miles N of Eau Gallie Causeway, entry road off South Patrick Blvd. Perimeter marsh along E, W and S sides of old spoil island.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Rhizophora mangle*, *Avicennia mangle*, and *Laguncularia racemosa* were planted on 5-ft centers; *Sporobolus virginicus* was planted on 2-ft centers.

Percent vegetative cover attained by the planted marsh: 100% cover by *Spartina* and mangroves.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 2-ft centers. Some *Spartina* is being displaced by volunteer mangroves. After a slow start the grasses have filled in to almost complete coalescence.

- The mangroves have formed a 6-10' hedge along the entire shoreline. Marsh name: Windward Cove

Marsh Inventory No.: 783 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 08/01/87

Area Planted (1acre = 0.4047 ha): 0.490 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Jack Bennett (407) 783-3060 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 21' **Longitude (W):** 80 36' 30"

Bay and sub-bays: Banana River

Directions to the site: Cocoa Beach; A-1-A half mile S of State Rd. 520; narrow fringing site along W and S shoreline protected by coquina boulder revetment.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Paspalum vaginatum* was planted on 2-ft centers; *Avicennia germinans* and *Laguncularia racemosa* were planted on 5-ft centers.

Percent vegetative cover attained by the planted marsh: 95-100% as of May-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Much of the *Spartina alterniflora* has been replaced by *Scirpus robustus* and mangroves. This is a replacement planting where mangroves had displaced the marsh, and then been killed by freezes.

- Marsh name: Rock Pointe. *S. alterniflora* clumps were planted 2'on center (=o.c.)

Marsh Inventory No.: 786 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 08/01/90

Area Planted (1acre = 0.4047 ha): 0.648 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Arnold Mallard (407) 730-2404 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 32' **Longitude (W):** 80 36' 40"

Bay and sub-bays: Banana River

Directions to the site: Cape Canaveral; adjacent to Titan missile complex (restricted access); rectangular created wetland connected to the Banana River.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Bacopa carolinianum*, *Eleocharis cellulosa*, *Sesuvium portulacastrum*, *Batis maritima*, *Salicornia virginica*, *Sporobolus virginicus*, *Distichlis spicata*, and *Spartina bakeri* were planted on 3-ft centers; *Laguncularia racemosa* on 5-ft centers.

Percent vegetative cover attained by the planted marsh: 60-70% cover as of Oct-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* occupies only the waterward edge; the majority of the site is covered by *Distichlis* and other high marsh species. Mangroves have survived. Growth is good and coverage should reach 90-100% by 1995.

- Marsh name: Canaveral AFS-Solid Motor Assembly Building. *S. alterniflora* clumps were planted on 3-ft centers.

Marsh Inventory No.: 773 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 08/01/84

Area Planted (1acre = 0.4047 ha): 0.138 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Bill Moord (407) 783-0037 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 23' 25" **Longitude (W):** 80 36' 50"

Bay and sub-bays: Banana River

Directions to the site: Cape Canaveral; A-1-A; 1 mile S of State Rd. 528; narrow shelf along a canal bordered by wooden bulkhead.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Rhizophora mangle*

Percent vegetative cover attained by the planted marsh: 80-90% as of March-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Planted between Aug-84 and June-85. Most *Spartina* has been displaced by a dense mangrove hedge. Some *Paspalum* and *Distichlis* invasion on the shelf, and isolated heavy patches of *Typha* combine to cover 90% of the shelf with 100% cover.

- Marsh name: Treasure Island Club *S. alterniflora* clumps were planted 2' on center (=o.c.)

Marsh Inventory No.: 186 **Information Rank (1-5):** 5 **State:** FL

Date Planted:

Area Planted (1acre = 0.4047 ha): 0.040 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Mariner's Square

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 21' 50" ? **Longitude (W):** 80 40' 50" ?

Bay and sub-bays: Banana River

Directions to the site: Mariner's Square; Cocoa Beach

Source of planting information: Dr. Tom Roberts, Tennessee Tech University, Cookeville, TN 38505

Source of subsequent assessment information: (Roberts, 1991)

References or reports: (Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 49%, 1987

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- No birds; a mouse; only a few killifish. Very small fringe marsh lacks habitat complexity needed to support fish; should not have been in the study because it was so small.

Marsh Inventory No.: 250 Information Rank (1-5): 4 State: FL

Date Planted: 1983

Area Planted (1acre = 0.4047 ha): 0.400 hectares

COE Permit No.: None Date of COE Permit:

Originator or Applicant for permit: Costa del Sol Condominiums

Location of the marsh.

State: FL County: Brevard Latitude (N): 28 22' 15" Longitude (W): 80 36' 18"

Bay and sub-bays: Banana River; Banana River Lagoon

Directions to the site: Banana River Lagoon, Cocoa Beach

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991; T. H. Roberts, 1991)

References or reports: (Crewz & Lewis, 1991; T. H. Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : *Rhizophora mangle*

Percent vegetative cover attained by the planted marsh: 30% (Crews & Lewis); 67% (Roberts); 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes, by Roberts. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- *Spartina alterniflora* limited by poor flushing; bad topography. Area is receiving much freshwater inflow and southern cattail, *Typha domingensis*, is invading. Mixed failure. Roberts found a few birds, a rat, signs of raccoons, and very many killifish.

Marsh Inventory No.: 251 **Information Rank (1-5):** 5 **State:** FL

Date Planted: 1983

Area Planted (1acre = 0.4047 ha): 0.120 hectares

COE Permit No.: None **Date of COE Permit:**

Originator or Applicant for permit: Fountain Cove Condominiums

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 20' 47" **Longitude (W):** 80 36' 32"

Bay and sub-bays: Banana River; Banana River Lagoon

Directions to the site: Fountain Cove, Banana River Lagoon, Cocoa Beach

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991; T. H. Roberts, 1991)

References or reports: (Crewz & Lewis, 1991; T. H. Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 34% (Crewz & Lewis), 51% (Roberts); 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- *Spartina alterniflora* limited by poor flushing and topography. Deemed a failure by Crewz and Lewis. Roberts found no birds or mammals, but very many killifish in the marsh.

Marsh Inventory No.: 785 Information Rank (1-5): 4 State: FL

Date Planted: 06/01/79

Area Planted (1acre = 0.4047 ha): 0.554 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit: Bob Lynds (407) 723-2095 is the contact person.

Location of the marsh.

State: FL County: Brevard Latitude (N): 28 22' 20" Longitude (W): 80 42' 10"

Bay and sub-bays: Banana River; Newfound Harbor

Directions to the site: Merritt Island; State Rd. 3, 4 miles N of State Rd. 520; fringing intertidal shoreline along the Indian River and boat basin.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Spartina patens*, *Paspalum vaginatum* and *Distichlis spicata* were planted on 2-ft centers.

Percent vegetative cover attained by the planted marsh: 90-100% cover by combined species as of March-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 2-ft centers. *S. alterniflora* is being replaced by high marsh grasses as the elevation has built up behind the coquina boulder revetment.

- Marsh name: Egret's Cove.

Marsh Inventory No.: 775 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 02/01/89

Area Planted (1acre = 0.4047 ha): 1.570 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Ron Taylor (407) 783-1320 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 21' 30" **Longitude (W):** 80 41' 05"

Bay and sub-bays: Banana River; Newfound Harbor

Directions to the site: Merritt Island; State Rd 520; behind and S of Merritt Square Mall; large cove connected by wide inlet to Newfound Harbor.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Juncus roemerianus* was planted on 3-ft centers; *Rhizophora mangle* was also planted.

Percent vegetative cover attained by the planted marsh: 90-100% cover as of Aug-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- The large tidal flats are completely grown in with *Spartina*, *Juncus* and other high marsh species. Volunteer mangroves (mostly white) are taking over in some areas. There is a sparse area in the NW corner or the planted shelf.

- Marsh name: Harbor Woods *S. alterniflora* clumps were planted on 3-ft centers.

Marsh Inventory No.: 761 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 03/01/85

Area Planted (1acre = 0.4047 ha): 1.137 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: William Lambert (407) 452-7946 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 24' 15" **Longitude (W):** 80 41' 55"

Bay and sub-bays: Banana River; Newfound Harbor; Sykes Creek

Directions to the site: Merritt Island; Hwy 528 at S.R. 3 on Merritt Island; enclosed pond connected to Newfound Harbor via culverts.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Distichlis spicata* was planted on 3-ft centers.

Percent vegetative cover attained by the planted marsh: Much of the *Spartina* has been replaced by *Eleocharis* and *Scirpus robustus*, but the marsh as a whole has achieved 85-100% cover, as of May-92.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Freshwater species have invaded. *Typha* has taken over a large area. There are periodic heavy freshwater inflows.
- Marsh name: Lambert Seafoods, Inc. *S. alterniflora* clumps were planted on 3-ft centers.

Marsh Inventory No.: 767 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 12/01/89

Area Planted (1acre = 0.4047 ha): 1.267 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Reese Kessler (407) 696-4222 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 26' 00" **Longitude (W):** 80 41' 50"

Bay and sub-bays: Banana River; Newfound Harbor; Sykes Creek

Directions to the site: Merritt Island; State Rd. 3, 3 miles N of Hwy 528; created wetlands, mostly high marsh adjacent to tidal ditch connected to Sykes Creek.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Distichlis spicata*, *Salicornia virginica*, and *Batis maritima* were planted on 2-ft centers; *Avicennia germinans* and *Spartina bakeri*.

Percent vegetative cover attained by the planted marsh: 100% by high marsh species, and by fring *S. alterniflora* as of Oct-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 2-ft centers. Growing well.
- Marsh name: Savannahs

Marsh Inventory No.: 195 Information Rank (1-5): 5 State: FL

Date Planted: 1986

Area Planted (1acre = 0.4047 ha): 0.010 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Brevard Latitude (N): Longitude (W):

Bay and sub-bays: Canaveral Bay

Directions to the site: Canaveral Bay; Cocoa Beach

Source of planting information: Dr. Tom Roberts, Tennessee Tech University, Cookeville, TN 38505

Source of subsequent assessment information: (Roberts, 1991)

References or reports: (Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 73%, 1987

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- No birds; no rats; raccoon tracks; many small killifish.
-

Marsh Inventory No.: 772 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 01/01/88

Area Planted (1acre = 0.4047 ha): 0.271 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Stan Rosenbaum (904) 446-0346 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** **Longitude (W):**

Bay and sub-bays: ICW

Directions to the site: Flagler Beach; A-1-A 3 miles N of Hwy 100; created intertidal shelf along ICW protected by coquina rock revetment.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Sporobolus virginicus*, *Distichlis spicata*, *Juncus roemerianus* and *Paspalum vaginatum* were planted on 2-ft centers.

Percent vegetative cover attained by the planted marsh: 100% cover by *Spartina* and highmarsh species.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Erosion due to boat wakes is severe in this region, and is why the rock break water was built to protect the planting and shoreline. The planted intertidal community is healthy and has generally coalesced to complete ground coverage.

- The *Juncus* marsh planted adjacent to an existing natural needlerush marsh has also achieved 100% aerial coverage and is indistinguishable from the natural marsh. Marsh name: Ocean Marina.

Marsh Inventory No.: 757 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 04/01/90

Area Planted (1acre = 0.4047 ha): 1.012 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Bill Sargent (904) 329-4500 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** **Longitude (W):**

Bay and sub-bays: Indian River

Directions to the site: Several dredged material deposition islands and peninsulas in the Indian River, 7 sites.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Avicennia germinans* was planted on 4-ft centers.

Percent vegetative cover attained by the planted marsh: 100% cover in 20% of the planted area; 25% of the area was lost to erosion; remaining 55% are coalescing and have reached about 70% cover as of June-93.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 2-ft centers. Some areas were subject to severe erosion and were washed out. No protective devices were used to protect the plantings.

- Project name: S.W.I.M. in Brevard and Indian River counties.

Marsh Inventory No.: 762 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 02/01/90

Area Planted (1acre = 0.4047 ha): 1.728 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Mark Hesse (407) 452-7631 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 26' 30" **Longitude (W):** 80 43' 25"

Bay and sub-bays: Indian River

Directions to the site: Merritt Island; State Road 3, 6 miles N of Hwy 528; protected cove and 3 sites on the Indian River.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Distichlis spicata* and *Paspalum vaginatum* were planted on 3-ft centers; *Avicennia germinans* was planted from 1-gal containers on 10-ft centers.

Percent vegetative cover attained by the planted marsh: 80-100% cover attained in most *Spartina* areas as of May-92

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- The grasses are healthy in all of the planted areas. The retention area and the Big Lake shoreline are experiencing some nuisance species invasion. The mangroves were all killed by freezes, but some mangroves are growing in the *Spartina*.

- Marsh name: Indian Bay *S. alterniflora* clumps were planted on 3-ft centers.

Marsh Inventory No.: 776 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 05/01/86

Area Planted (1acre = 0.4047 ha): 0.465 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Ed Poe (407) 267-1841 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 37' **Longitude (W):** 80 48' 10"

Bay and sub-bays: Indian River

Directions to the site: Titusville; State Rd. 406 at Indian River; shoreline marsh created behind a protective coquina rock revetment.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Distichlis spicata*, *Sporobolus virginicus*, *Paspalum vaginatum* were planted on 2-ft centers; *Laguncularia racemosa*.

Percent vegetative cover attained by the planted marsh: 95% cover by the combined species as of Sept-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- The *Spartina* has diminished in favor of the other high marsh grass species. Most of the mangroves were killed by freezes. Potential erosion by wave action was averted by a coquina boulder break water.

- Marsh name: Harbor Town. *S. alterniflora* clumps were planted on 2-ft centers.

Marsh Inventory No.: 780 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 09/01/82

Area Planted (1acre = 0.4047 ha): 0.255 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Steve Peffer (407) 453-9517 is the contact person.

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 04' 40" **Longitude (W):** 80 35' 40"

Bay and sub-bays: Indian River

Directions to the site: Melbourne; U.S. Hwy 192 at U.S. 1; small pocket marsh created behind coquina breakwater.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Distichlis spicata* and *Paspalum vaginatum* were planted on 2-ft centers; *Rhizophora mangle* and *Laguncularia racemosa*.

Percent vegetative cover attained by the planted marsh: 100% as of Sept-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina* is being replaced by volunteer mangroves. Most planted mangroves died in subsequent freezes. Elevations have favored a transition to high marsh dominated by *Distichlis* and *Paspalum*.

- Marsh name: Front Street Park. *S. alterniflora* clumps were planted on 2-ft centers.

Marsh Inventory No.: 221 **Information Rank (1-5):** 5 **State:** FL

Date Planted: 1985

Area Planted (1acre = 0.4047 ha): 0.120 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Harbor Isles

Location of the marsh.

State: FL **County:** Brevard **Latitude (N):** 28 21' 50" ? **Longitude (W):** 80 40' 50" ?

Bay and sub-bays: Newfound Harbor, Banana River;

Directions to the site: Harbor Isles; Cocoa Beach

Source of planting information: Dr. Tom Roberts, Tennessee Tech University, Cookeville, TN 38505

Source of subsequent assessment information: (Roberts, 1991)

References or reports: (Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 79%, 1987

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- Marsh was successful. No birds; no rats; raccoon tracks; many small killifish.

Marsh Inventory No.: 750 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 07/01/90

Area Planted (1acre = 0.4047 ha): 3.950 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Paul Douglas (305) 254-2106 is the contact person

Location of the marsh.

State: FL **County:** Dade **Latitude (N):** 25 44' 00?" **Longitude (W):** 80 13' 00?"

Bay and sub-bays: Biscayne Bay; Deering Bay; flushing channel

Directions to the site: Miami; Old Cutler Road at Chapman Field; flushing channel connecting bay to Biscayne Bay.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Sporobolus virginicus* was planted on 2-ft centers; *Eleocharis cellulosa*, *Sagittaria lancifolia*, *Scirpus validus*, *Rhizophora mangle*.

Percent vegetative cover attained by the planted marsh: After replanting: 70-100% aerial coverage.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Water levels and salinities have fluctuated wildly at the site. 25,000 plants have died. Remedial action was to replant with *Spartina alterniflora* and *Sporobolus virginicus*. The *Spartina* is beginning to trap mangrove seeds.

- Marsh name: Deering Bay *S. alterniflora* clumps were planted on 2-ft centers.

Marsh Inventory No.: 774 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 06/01/87

Area Planted (1acre = 0.4047 ha): 0.567 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Jack Tallon (904) 829-6727 is the contact person.

Location of the marsh.

State: FL **County:** Duval **Latitude (N):** 30 17' 00?" **Longitude (W):** 81 25' 00?"

Bay and sub-bays: Pablo Creek

Directions to the site: Jacksonville; St. John's Bluff Rd.; 1 mile N of Butler Blvd.; created extension to natural tidal marsh.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Juncus roemerianus*

Percent vegetative cover attained by the planted marsh: 100% cover as of Apr-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 2-ft centers. Blended into the adjacent natural marshes; are indistinguishable.
- Marsh name: Coastal Point

Marsh Inventory No.: 763 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 10/01/84

Area Planted (1acre = 0.4047 ha): 0.417 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Mike Antonopoulos (904) 353-8471 is the contact person.

Location of the marsh.

State: FL **County:** Duval **Latitude (N):** 30 33' 00?" **Longitude (W):** 81 36' 30"

Bay and sub-bays: St. John's River

Directions to the site: Jacksonville; N end of University Blvd.; semi-enclosed cove; connected to the St. John's River by shallow inlets.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Sporobolus virginicus* was planted on 2-ft centers.

Percent vegetative cover attained by the planted marsh: 100% cover where elevation was high enough. May-92

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- High water levels due to poorly constructed flushing connection were corrected; healthy saltmarsh community with areas of open water was established with open pools in the deeper areas.

- Marsh name: Sandy Shores *S. alterniflora* clumps were planted on 3-ft centers.

Marsh Inventory No.: 771 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 04/01/85

Area Planted (1acre = 0.4047 ha): 0.202 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Bruce Taylor (904) 731-7040 is the contact person.

Location of the marsh.

State: FL **County:** Duval **Latitude (N):** 30 33' 00?" **Longitude (W):** 81 31' 40?"

Bay and sub-bays: St. John's River

Directions to the site: Jacksonville; end of Ft. Caroline Rd.; wide planted area along the St. John's River protected by granite rock revetment, at St. John's Landing.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 100% cover as of April-93.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Large tidal amplitudes and currents at this location. A granite break water surrounds the planted area, and acted as protection from wave erosion. The marsh reached coalescence within 3 months of planting, and has matured into a dynamic ecosystem.
- Marsh name: St. John's Landing *S. alterniflora* clumps were planted on 3-ft centers.

Marsh Inventory No.: 787 Information Rank (1-5): 4 State: FL

Date Planted: 10/01/88

Area Planted (1acre = 0.4047 ha): 3.966 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit: Steve Duval (904) 642-8507 is the contact person.

Location of the marsh.

State: FL County: Duval Latitude (N): 30 31' 00?" Longitude (W): 81 34' 00?"

Bay and sub-bays: St. John's River

Directions to the site: Jacksonville; Hwy. 9A over St. John's River; wide marsh at S abutment and central island.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Distichlis spicata* and *Sporobolus virginicus* were planted on 3-ft centers.

Percent vegetative cover attained by the planted marsh: 95-100% cover as of June-93.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 3-ft centers. Both areas have matured into dense healthy saltmarsh communities.

- Marsh name: Dames Point Bridge - South Abutment and Nichols Creek.

Marsh Inventory No.: 241 Information Rank (1-5): 5 State: FL

Date Planted:

Area Planted (1acre = 0.4047 ha): 0.200 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit: St. John's Landing

Location of the marsh.

State: FL County: Duval Latitude (N): Longitude (W):

Bay and sub-bays: St. John's River

Directions to the site: St. John's Landing; Jacksonville

Source of planting information: Dr. Tom Roberts, Tennessee Tech University, Cookeville, TN 38505

Source of subsequent assessment information: (Roberts, 1991)

References or reports: (Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 63%, 1987

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Birds, mammals, and epibenthic snails.

General comments about the marsh:

- Few birds; a mouse;
-

Marsh Inventory No.: 782 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 05/01/87

Area Planted (1acre = 0.4047 ha): 0.352 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Pete Peterson (904) 264-2011 is the contact person.

Location of the marsh.

State: FL **County:** Duval **Latitude (N):** 30 24' 30" **Longitude (W):** 81 40' 00?"

Bay and sub-bays: St. John's River; Trout River

Directions to the site: Jacksonville; Hecksher Dr. W of I-95; created extension of natural marsh connected to the Trout River by an excavated tidal creek.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Juncus roemerianus* was planted on 3-ft centers.

Percent vegetative cover attained by the planted marsh: 95-100% cover as of June-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 3-ft centers. Saltmarsh created next to a natural *Spartina-Juncus* marsh was very successful.
- Marsh name: River Crossing.

Marsh Inventory No.: 373 Information Rank (1-5): 3 State: FL

Date Planted: 1976

Area Planted (1acre = 0.4047 ha): hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 48' 28" Longitude (W): 82 25' 00"

Bay and sub-bays: Tampa Bay

Directions to the site: North side of Fishhook Island

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh: 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh name: Fishhook Island.

-

Marsh Inventory No.: 374 Information Rank (1-5): 3 State: FL

Date Planted: 1991

Area Planted (1acre = 0.4047 ha): hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 44' 33" Longitude (W): 82 28' 15"

Bay and sub-bays: Tampa Bay

Directions to the site: Pelican Cove, Simmons Park

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh: 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh name: Simmons Park.

-

Marsh Inventory No.: 376 Information Rank (1-5): 3 State: FL

Date Planted:

Area Planted (1acre = 0.4047 ha): 0.004 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit: Tampa Electric ?

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 38' 40" Longitude (W): 82 33' 25"

Bay and sub-bays: Tampa Bay

Directions to the site: Ft. Lonely

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh name: Tampa Electric Shoreline.
-

Marsh Inventory No.: 263 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 1985

Area Planted (1acre = 0.4047 ha): 1.214 hectares

COE Permit No.: 83D-2158 **Date of COE Permit:** 1983

Originator or Applicant for permit: Harbour Island

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 56' 08" **Longitude (W):** 82 26' 52"

Bay and sub-bays: Tampa Bay area; Sparkman Channel

Directions to the site: Seddon Island; along Sparkman Channel; E-side of Harbor Island, Site A.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991)

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* : *Rhizophora mangle*

Percent vegetative cover attained by the planted marsh: 8%, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? no

General comments about the marsh:

- *Spartina alterniflora* was growing, but ship wakes and flotsam debris appears to have damaged patches of the growth. Mixed success.

Marsh Inventory No.: 264 **Information Rank (1-5):** 5 **State:** FL

Date Planted: 1985

Area Planted (1acre = 0.4047 ha): 0.400 hectares

COE Permit No.: 83D-2158 **Date of COE Permit:** 1983

Originator or Applicant for permit: Harbour Island

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 56' 08" **Longitude (W):** 82 26' 52"

Bay and sub-bays: Tampa Bay area; Sparkman Channel

Directions to the site: Seddon Island; along Sparkman Channel; E-side of Harbor Island, Site B.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991); T. H. Roberts, 1991)

References or reports: (Crewz & Lewis, 1991); T. H. Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : *Rhizophora mangle*

Percent vegetative cover attained by the planted marsh: 27% (Crewz & Lewis), 60% (Roberts); 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- *Spartina alterniflora* was growing, but uneven elevations created pooling that drowned some plants. This area was behind a berm from Site A, thus semi-protected from ship wakes. Deemed a mixed success by Crewz and Lewis.

- Roberts found a few birds, raccoon and rabbit tracks, and many killifish.

Marsh Inventory No.: 375 Information Rank (1-5): 4 State: FL

Date Planted:

Area Planted (1acre = 0.4047 ha): 0.004 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 41'15" Longitude (W): 82 31' 15"

Bay and sub-bays: Tampa Bay; Cockroach Channel

Directions to the site: At end of Cockroach Bay Road

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh name: Cockroach Bay Boat Ramp.

-

Marsh Inventory No.: 368 Information Rank (1-5): 3 State: FL

Date Planted: 1989

Area Planted (1acre = 0.4047 ha): 1.740 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 53' 10" Longitude (W): 82 24' 15"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: Off Tamiami Trail, south of Port Sutton.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: Dr. Brandt Henningsen, SW Florida Water Management District, Surface Water Improvement and Management Program, 7601 Highway 301 N, Tampa, FL 33637, (813) 985-7481 ext. 2202

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Birds and fish.

General comments about the marsh:

- Some sampling has been done by SWIM. Comments that the marsh is coalescing nicely and more animals are using the area.
- Marsh name: Delaney Creek.

Marsh Inventory No.: 367 **Information Rank (1-5):** 3 **State:** FL

Date Planted: 1991

Area Planted (1acre = 0.4047 ha): hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Tampa Port Authority

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 53' 50" **Longitude (W):** 82 24' 45"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: Off US Bus.45(= Rd. 41), south of Port Sutton.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh: 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh name: Tampa Port Authority
-

Marsh Inventory No.: 647 **Information Rank (1-5):** 3 **State:** FL

Date Planted: 1993

Area Planted (1acre = 0.4047 ha): 4.897 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: SWIM and City of Tampa

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 50' 00" **Longitude (W):** 82 28' 15"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: At the end of Interbay Peninsula, on the MacDill AFB, in the SE corner.

Source of planting information: Dr. Brandt Henningsen, SW Florida Water Management District, Surface Water Improvement and Management Program, 7601 Highway 301 N, Tampa, FL 33637, (813) 985-7481 ext. 2202

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Will be completed in Dec '93 or spring '94.
- Marsh name: MacDill AFB, No.2 - N of Gadsden Point.

Marsh Inventory No.: 677 Information Rank (1-5): 3 State: FL

Date Planted: 12/01/93

Area Planted (1acre = 0.4047 ha): 7.123 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit: U.S. Air Force and SWIM

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 49' 25" Longitude (W): 82 23' 30"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: MacDill Air Force Base; Gadsden Point, Tampa

Source of planting information: Dr. Brandt Henningsen, SW Florida Water Management District, Surface Water Improvement and Management Program, 7601 Highway 301 N, Tampa, FL 33637, (813) 985-7481 ext. 2202

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

-
-

Marsh Inventory No.: 371 Information Rank (1-5): 3 State: FL

Date Planted:

Area Planted (1acre = 0.4047 ha): hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 50' 56" Longitude (W): 82 24' 30"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: North side of Bird Island

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh: 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh name: Bird Island.
-

Marsh Inventory No.: 617 Information Rank (1-5): 4 State: FL

Date Planted: 1979

Area Planted (1acre = 0.4047 ha): 0.405 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 52' 24" Longitude (W): 82 25' 45"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: Dredged material Island 2D

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: Dr. Brandt Henningsen, SWIM, (813) 985-7481 ext. 2202

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Furnished *Spartina alterniflora* transplant material for another project. This marsh's recovery was evaluated (Courtney 1991). The marsh filled in the 1-m wide harvested zones within a growing season.

- Henningsen said this marsh was coalescing nicely; successful.

Marsh Inventory No.: 679 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 1992

Area Planted (1acre = 0.4047 ha): 1.214 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit:

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 51' 20" **Longitude (W):** 82 32' 50"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: A little N of the end of Interbay Peninsula and west of MacDill AFB.

Source of planting information: Dr. Brandt Henningsen, SW Florida Water Management District, Surface Water Improvement and Management Program, 7601 Highway 301 N, Tampa, FL 33637, (813) 985-7481 ext. 2202

Source of subsequent assessment information:

References or reports:

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh:

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Will be finished in 1993.
- Marsh name: Picnic Island.

Marsh Inventory No.: 370 Information Rank (1-5): 4 State: FL

Date Planted:

Area Planted (1acre = 0.4047 ha): hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 52' 00" Longitude (W): 82 24' 13"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: West shoreline of East Tampa.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports: (Crewz & Lewis, 1991; Henningsen, 1993)

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh: 1986 and 1993

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh is doing well (filling in).
- Marsh name: Gypsum Stack.

Marsh Inventory No.: 365 **Information Rank (1-5):** 5 **State:** FL

Date Planted: 1983?

Area Planted (1acre = 0.4047 ha): 2.800 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit:

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 49' 35" **Longitude (W):** 82 29' 05"

Bay and sub-bays: Tampa Bay; Hillsborough Bay.

Directions to the site: At the end of Interbay Peninsula, on the MacDill AFB, a little W of the SE corner.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Roberts, 1991)

References or reports: (Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 60%, 1987

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- Few birds; a rat; raccoon tracks; many killifish;
- Marsh name: MacDill AFB, No.1

Marsh Inventory No.: 266 Information Rank (1-5): 4 State: FL

Date Planted: 1979

Area Planted (1acre = 0.4047 ha): 1.700 hectares

COE Permit No.: None Date of COE Permit:

Originator or Applicant for permit: Sunken Island

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 48' 25" Longitude (W): 82 26' 01"

Bay and sub-bays: Tampa Bay; Hillsborough Bay; Alafia River Mouth.

Directions to the site: Northwest end of Sunken Island

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991)

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 26%, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? no

General comments about the marsh:

- *Spartina alterniflora* was growing well at low elevations; black and white mangrove had invaded as expected, and was doing very well amongst the *S. alterniflora* at higher elevations. Successful.

- *S. alterniflora* colonizes an area but then loses dominance as mangroves invade and displace the cordgrass.

Marsh Inventory No.: 670 Information Rank (1-5): 3 State: FL

Date Planted: 1978

Area Planted (1acre = 0.4047 ha): 0.405 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 51' 49" Longitude (W): 82 23' 40"

Bay and sub-bays: Tampa Bay; Hillsborough Bay; Archie Creek

Directions to the site: Archie Creek between 45 and 78 th St.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports: (Crewz & Lewis, 1991; Henningsen, 1993)

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh: 1986; 1993

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh name: One-acre Marsh

Marsh Inventory No.: 369 Information Rank (1-5): 3 State: FL

Date Planted: 1988

Area Planted (1acre = 0.4047 ha): 0.405 hectares

COE Permit No.: Date of COE Permit:

Originator or Applicant for permit:

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 51' 49" Longitude (W): 82 23' 40"

Bay and sub-bays: Tampa Bay; Hillsborough Bay; Archie Creek

Directions to the site: Archie Creek between 45 and 78 th St.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information:

References or reports: (Crewz & Lewis, 1991; Henningsen, 1993)

Other species planted in addition to *Spartina alterniflora* :

Percent vegetative cover attained by the planted marsh: 1986; 1993

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when?

General comments about the marsh:

- Marsh name: One-acre Marsh

Marsh Inventory No.: 262 **Information Rank (1-5):** 5 **State:** FL

Date Planted: 1978

Area Planted (1acre = 0.4047 ha): 2.500 hectares

COE Permit No.: 76-074 **Date of COE Permit:** 1976

Originator or Applicant for permit: The Gardinier, Inc.

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 51' 49" **Longitude (W):** 82 23' 40"

Bay and sub-bays: Tampa Bay; Hillsborough Bay; Archie Creek.

Directions to the site: East Tampa, at The Gardinier, Inc. property on Archie Creek off the Alafia River

Source of planting information: Crewz and Lewis, and Dr. Tom Roberts, Tennessee Tech University, Cookeville, TN 38505

Source of subsequent assessment information: (Roberts, 1991)

References or reports: (Crewz & Lewis, 1991; Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 84%, 1986 (Crewz & Lewis); 72%, 1987 (Roberts)

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes, (Roberts, 1991). Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- Roberts found many birds, several rats and mice, and many killifish. Crewz and Lewis also surveyed this marsh and deemed it successful, however, fine silt drainage from this area appeared to be negatively impacting a natural marsh downstream.

Marsh Inventory No.: 366 **Information Rank (1-5):** 5 **State:** FL

Date Planted: 1992

Area Planted (1acre = 0.4047 ha): 1.214 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: City of Tampa

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 57' 05" **Longitude (W):** 82 24' 50"

Bay and sub-bays: Tampa Bay; Hillsborough Bay; McKay Bay

Directions to the site: Northernmost branch of McKay Bay, south of Rd. 618.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: Dr. Brandt Henningsen, SWIM, (813) 985-7481 ext. 2202

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* : *Spartina patens* and *Paspalum distichum*.

Percent vegetative cover attained by the planted marsh: 1986 and 1993.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries studies with monthly sampling since Mar'92

General comments about the marsh:

- Marsh doing well, and being used by birds, reptiles and fish.
- Marsh name: McKay Bay

Marsh Inventory No.: 255 Information Rank (1-5): 4 State: FL

Date Planted: 1984

Area Planted (1acre = 0.4047 ha): 0.142 hectares

COE Permit No.: 84W-0514 Date of COE Permit: 07/03/84

Originator or Applicant for permit: Wilson Company

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 57' 52" Longitude (W): 82 33' 08"

Bay and sub-bays: Tampa Bay; Old Tampa Bay

Directions to the site: Fish Creek off 589-Bayport C

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991)

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 2%, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? no

General comments about the marsh:

- Planted *Spartina alterniflora* was dying; substrate was too low, and there was too much wave impact. Failure.

-

Marsh Inventory No.: 254 Information Rank (1-5): 4 State: FL

Date Planted: 1984

Area Planted (1acre = 0.4047 ha): 0.405 hectares

COE Permit No.: 84W-0514 Date of COE Permit: 07/03/84

Originator or Applicant for permit: Wilson Company

Location of the marsh.

State: FL County: Hillsborough Latitude (N): 27 57' 52" Longitude (W): 82 33' 08"

Bay and sub-bays: Tampa Bay; Old Tampa Bay

Directions to the site: Fish Creek off 589-Bayport B

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991)

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 45%, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? no

General comments about the marsh:

- *Spartina alterniflora* was growing well, good topography, but there was no room for expansion with sealevel rise. Successful.

Marsh Inventory No.: 256 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 1985

Area Planted (1acre = 0.4047 ha): 0.202 hectares

COE Permit No.: 84W-0514 **Date of COE Permit:** 07/03/84

Originator or Applicant for permit: Wilson Company

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 58' 52" **Longitude (W):** 82 33' 08"

Bay and sub-bays: Tampa Bay; Old Tampa Bay

Directions to the site: Fish Creek off 589-Bayport D

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991)

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 1%, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? no

General comments about the marsh:

- *Spartina alterniflora* was growing poorly; site's substrate was too low and had poor tidal flushing. Failure.

Marsh Inventory No.: 53 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 1985

Area Planted (1acre = 0.4047 ha): 0.202 hectares

COE Permit No.: 84W-0514 **Date of COE Permit:** 07/03/84

Originator or Applicant for permit: Wilson Company

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 57' 52" **Longitude (W):** 82 33' 08"

Bay and sub-bays: Tampa Bay; Old Tampa Bay

Directions to the site: Fish Creek off 589-Bayport A

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991)

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 16%, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? no

General comments about the marsh:

- *Spartina alterniflora* was growing, but humans were trampling it. Mixed success.

-

Marsh Inventory No.: 372 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 1983

Area Planted (1acre = 0.4047 ha): 0.100 hectares

COE Permit No.: 82(?) -0048 **Date of COE Permit:** 06/04/05

Originator or Applicant for permit: Gandy Bridge Boat Ramp

Location of the marsh.

State: FL **County:** Hillsborough **Latitude (N):** 27 53' 25" **Longitude (W):** 82 32' 05"

Bay and sub-bays: Tampa Bay; Old Tampa Bay.

Directions to the site: Under the east end of Gandy Bridge off the Interbay Peninsula, Tampa.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991; Roberts, 1991)

References or reports: (Crewz & Lewis, 1991; Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : *Rhizophora mangle*

Percent vegetative cover attained by the planted marsh: 25% 1986 (Crewz & Lewis); 50% 1987 (Roberts)

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- This area had too low of elevations in its interior for cordgrass establishment, and was deemed a failure by Crewz and Lewis (1991) in their survey made in the spring of 1986.

- No birds, a rat, signs of rabbits, and many killifish were found by Roberts (1991).

Marsh Inventory No.: 253 Information Rank (1-5): 4 State: FL

Date Planted: 1985

Area Planted (1acre = 0.4047 ha): 0.202 hectares

COE Permit No.: None Date of COE Permit:

Originator or Applicant for permit: Seagrove

Location of the marsh.

State: FL County: Indian River Latitude (N): 27 37' 10" Longitude (W): 80 21' 20"

Bay and sub-bays: Indian River

Directions to the site: Indian River Lagoon

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991)

References or reports: (Crewz & Lewis, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 37%, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? no

General comments about the marsh:

- *Spartina alterniflora* and mangrove well established; good flushing and topography. Successful.

Marsh Inventory No.: 752 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 07/01/85

Area Planted (1acre = 0.4047 ha): 0.640 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Andreas Gotzfried (305) 867-2000 is the contact person

Location of the marsh.

State: FL **County:** Indian River **Latitude (N):** 27 34' 00?" **Longitude (W):** 80 19' 50"

Bay and sub-bays: Indian River

Directions to the site: Vero Beach; Hwy. A-1-A 5 miles S of State Rd 60; a tidal creek-loop system connected through a fringing mangrove swamp to the Indian River.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 100% March-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 3-ft centers. Thick band of *Spartina* along edge. *Spartina* inside has largely (90%) been replaced by mangroves. The area also has *Batis*, *Salicornia*, *Sesuvium*, and *Sueda*.

- Marsh name: Sea Grove

Marsh Inventory No.: 753 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 04/01/86

Area Planted (1acre = 0.4047 ha): 0.250 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Henry Muller or Steve Moler (407) 231-4223 are the contact people.

Location of the marsh.

State: FL **County:** Indian River **Latitude (N):** 27 51' 05" **Longitude (W):** 80 29' 30"

Bay and sub-bays: Indian River

Directions to the site: Sebastian; US 1 at S end of city limits; created on a peninsula between harbor and Indian River.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Paspalum vaginatum*

Percent vegetative cover attained by the planted marsh: 100% July-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 3-ft centers. Saltmarsh grasses were planted as an initial stabilizer community and as a nursery for mangrove establishment. *Spartina* has been mostly replaced by mangroves in the interior.

- Marsh name: River Run Condo

Marsh Inventory No.: 778 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 10/01/81

Area Planted (1acre = 0.4047 ha): 1.404 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Bob Lynds is the contact person.

Location of the marsh.

State: FL **County:** Indian River **Latitude (N):** 28 04' 40" **Longitude (W):** 80 36' 10"

Bay and sub-bays: Indian River

Directions to the site: Melbourne; Hwy 192 at the Indian River; fringing shoreline with coquina rock revetment.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Spartina patens* and *Distichlis spicata* were planted on 2-ft centers.

Percent vegetative cover attained by the planted marsh: 95-100% cover as of Sept-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Coquina boulder break water was installed at the toe zone to prevent erosion. Mangroves are beginning to invade the marsh, especially in a 1 acre marsh on the N side of the point (about 50% mangrove as of Sept-93).
- Marsh name: Melbourne Harbor *S. alterniflora* clumps were planted on 2-ft centers.

Marsh Inventory No.: 779 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 03/01/90

Area Planted (1acre = 0.4047 ha): 0.210 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: George Fleming (407) 783-6153 is the contact person.

Location of the marsh.

State: FL **County:** Indian River **Latitude (N):** 27 36' 00?" **Longitude (W):** 80 20' 00?"

Bay and sub-bays: Indian River

Directions to the site: Vero Beach; A-1-A 5 miles S of State Rd. 60; fringing marsh along shoreline.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 80-90% cover as of Jun-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 2-ft centers. The *Spartina* marsh is being invaded by mangroves. The marsh was established for erosion control and intertidal habitat.

- Marsh name: Sand Pointe

Marsh Inventory No.: 765 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 07/01/88

Area Planted (1acre = 0.4047 ha): 28.410 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Ron Andrews (407) 778-0503 is the contact person.

Location of the marsh.

State: FL **County:** Indian River **Latitude (N):** 27 37' 30?" **Longitude (W):** 80 22' 45"

Bay and sub-bays: Indian River

Directions to the site: Vero Beach; U.S.1 N of Vero Beach and between 45th and 51st streets; rehabilitated tidal marsh in an old mosquito impoundment.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Spartina bakeri*, *Iris virginica*, *Pontederia cordata*, *Sagittaria lancifolia*, *Distichlis spicata*, *Sporobolus virginicus*, *Spartina patens*, *Sesuvium portulacastrum*, *Juncus roemerianus*, *Batis maritima*, *Salicornia virginica* were planted on 1.5-ft centers.

Percent vegetative cover attained by the planted marsh: 95-100% cover by marsh plants, as of Nov-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- The estuarine and freshwater marshes have reached nearly 100% ground cover throughout the project. Additional species have invaded from adjacent areas. Mangrove invasion in some areas.

- Marsh name: Grand Harbor. *S. alterniflora* clumps were planted on 1.5-ft centers.

Marsh Inventory No.: 766 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 03/01/89

Area Planted (1acre = 0.4047 ha): 2.975 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Reese Kessler (407) 699-4222 is the contact person.

Location of the marsh.

State: FL **County:** Indian River **Latitude (N):** 27 34' 00?" **Longitude (W):** 80 21' 40"

Bay and sub-bays: Indian River

Directions to the site: Vero Beach; U.S.1 S of Vero Beach, 1 mile S of Oslo Rd.; enclosed created tidal wetland, tidal flats.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Avicennia germinans*, *Scirpus validus*, *Sagittaria lancifolia*, *Pontederia cordata*; *Batis maritima* and *Salicornia virginica* were planted on 2-ft centers.

Percent vegetative cover attained by the planted marsh: 100% by *S. alterniflora*; 100% cover by FW planting.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- *Spartina alterniflora* clumps were planted on 2-ft centers. Mangroves are beginning to dominate some areas of the *Spartina* marsh. Freshwater plantings have covered their areas and are spreading further.

- Marsh name: Grove Isle.

Marsh Inventory No.: 618 **Information Rank (1-5):** 5 **State:** FL

Date Planted:

Area Planted (1acre = 0.4047 ha): 0.450 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Sea Grove West

Location of the marsh.

State: FL **County:** Indian River **Latitude (N):** 27 38' 00" ? **Longitude (W):** 80 22' 30" ?

Bay and sub-bays: Indian River;

Directions to the site: Sea Grove West; Vero Beach

Source of planting information: Dr. Tom Roberts, Tennessee Tech University, Cookeville, TN 38505

Source of subsequent assessment information: (Roberts, 1991)

References or reports: (Roberts, 1991)

Other species planted in addition to *Spartina alterniflora* : none

Percent vegetative cover attained by the planted marsh: 40%, 1987

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Yes. Fisheries species, birds, mammals, and epibenthic snails.

General comments about the marsh:

- Modest marsh establishment. No birds; a couple of rats; raccoon tracks; few killifish.

Marsh Inventory No.: 261 **Information Rank (1-5):** 5 **State:** FL

Date Planted: 05/01/76

Area Planted (1acre = 0.4047 ha): 0.202 hectares

COE Permit No.: Yes, but not known **Date of COE Permit:** 1976

Originator or Applicant for permit: Private land developer

Location of the marsh.

State: FL **County:** Indian River **Latitude (N):** 27 40' 57" **Longitude (W):** 80 22' 12"

Bay and sub-bays: Indian River; McCullers Cove

Directions to the site: NE corner of McCullers Cove, about 5 km N of Riomar which is E of Vero Beach. At the SW tip of the residential development bulkhead.

Source of planting information: A. Banner, 1977

Source of subsequent assessment information: (Banner, 1977)

References or reports: (Banner, 1977)

Other species planted in addition to *Spartina alterniflora* : *Rhizophora mangle*, *Laguncularia racemosa*, *Avicennia nitida*

Percent vegetative cover attained by the planted marsh: 90%, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? A general sampling of fish, shellfish, and benthos was made.

General comments about the marsh:

- *Spartina alterniflora* and mangrove well established; good flushing and topography. Successful.
- Many organisms typical of the estuary were found in the restored area, fewer benthic organisms were found in the thick *Spartina* marsh than away from it.

Marsh Inventory No.: 756 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 04/01/82

Area Planted (1acre = 0.4047 ha): 39.050 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Bob Snyder (407) 746-7290 is the contact person.

Location of the marsh.

State: FL **County:** Martin **Latitude (N):** 26 55' 00?" **Longitude (W):** 80 04' 20"

Bay and sub-bays: Loxahatchee River

Directions to the site: Jupiter; Alternate A-1-A, 1 mile S of S.R. 706; interconnecting system of canals and tidal marsh shelves, connected by 4 inlets.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc. Port Orange, FL (904) 767-6232. *S. alterniflora* clumps were planted 2'on center (=o.c.)

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Batis maritima*, *Sporobolus virginicus*, *Distichlis spicata*, *Juncus roemerianus*, *Avicennia germinans* and *Rhizophora mangle*. The grasses were planted on 2-ft centers.

Percent vegetative cover attained by the planted marsh: 100% cover in 90 acres by mangroves or saltmarsh species.

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Most of the *Spartina* has been replaced (displaced) by volunteer mangroves. Cordgrass fring dominates the waterward edges.
- Marsh name: Admirals Cove

Marsh Inventory No.: 257 Information Rank (1-5): 4 State: FL

Date Planted: 1981

Area Planted (1acre = 0.4047 ha): 3.500 hectares

COE Permit No.: 80M-0276 Date of COE Permit: 1980

Originator or Applicant for permit: Florida Keys Aqueduct Authority

Location of the marsh.

State: FL County: Monroe Latitude (N): 25 06' 39" Longitude (W): 80 24' 52"

Bay and sub-bays: Key Largo

Directions to the site: Parallel to Highway A1A for several miles on Key Largo.

Source of planting information: Dr. Robin Lewis, III., Lewis Environmental Services, Inc., P.O. Box 20005, Tampa, FL 33622-0005, (813) 889-9684

Source of subsequent assessment information: (Crewz & Lewis, 1991)

References or reports: (Crewz & Lewis, 1991); A. Mager

Other species planted in addition to *Spartina alterniflora* : *Avicennia germinans*

Percent vegetative cover attained by the planted marsh: 12% - cordgrass; 8% - mangroves, 1986

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? no

General comments about the marsh:

- *Spartina alterniflora* was growing poorly; site's substrate was too low and had poor tidal flushing. The mangroves' roots could not penetrate very far in the rocky substrate. Failure.

Marsh Inventory No.: 764 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 12/01/79

Area Planted (1acre = 0.4047 ha): 5.463 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Don Shakelford (407) 627-5110 is the contact person.

Location of the marsh.

State: FL **County:** Palm Beach **Latitude (N):** 26 53' 30" **Longitude (W):** 80 05' 00?"

Bay and sub-bays: ICW

Directions to the site: Palm Beach Gardens; Donald Ross Rd., W of ICW; loop system of created tidal canals with narrow tidal beaches.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc. Port Orange, FL (904) 767-6232. *S. alterniflora* clumps were planted 2'on center (=o.c.)

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Spartina patens*, *Sporobolus virginicus*, *Distichlis spicata*, and *Paspalum vaginatum* were planted on 2-ft centers; *Avicennia germinans*, *Rhizophora mangle*, and *Laguncularia racemosa*.

Percent vegetative cover attained by the planted marsh: 80-100% *Spartina* cover; thinner areas of mangrove cover, as of May-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Planted over a long time: Dec-79 thru May-90. Most of the intertidal shelves are successfully vegetated, although some areas are sparse; heavy invasion by mangrove volunteers.

- Marsh name: Frenchman's Creek.

Marsh Inventory No.: 755 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 11/01/82

Area Planted (1acre = 0.4047 ha): 0.500 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Don Shackelford (305) 627-5110 is the contact person.

Location of the marsh.

State: FL **County:** Palm Beach **Latitude (N):** 26 53' 00?" **Longitude (W):** 80 05' 05?"

Bay and sub-bays: ICW

Directions to the site: Palm Beach Gardens; tidal canal connencted to the Intracoastal via culverts; just N of Donald Ross Rd. on Cypress Creek RD; fringing marsh along steep bank.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc. Port Orange, FL (904) 767-6232. *S. alterniflora* clumps were planted 2'on center (=o.c.)

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Juncus roemerianus*, *Avicennia germinans*, *Laguncularia racemosa* and *Rhizophora mangle* were planted on 2-ft centers. *Rhizophora* was in 1-gal containers.

Percent vegetative cover attained by the planted marsh: 100% cover, but is all mangrove. As of Jan-92

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- Most of the grasses and rushes have been displaced by the mangroves. The mangroves have formed a 10-15' tall dense hedge.
- Marsh name: Cypress Creek

Marsh Inventory No.: 754 **Information Rank (1-5):** 4 **State:** FL

Date Planted: 06/01/83

Area Planted (1acre = 0.4047 ha): 0.100 hectares

COE Permit No.: **Date of COE Permit:**

Originator or Applicant for permit: Robert Snyder (305) 746-7290 is the contact person.

Location of the marsh.

State: FL **County:** Palm Beach **Latitude (N):** 26 56' 00?" **Longitude (W):** 80 04' 20?"

Bay and sub-bays: ICW

Directions to the site: Jupiter; S side of Jupiter Inlet on a high energy shoreline.

Source of planting information: Mr. Steve Beeman, Ecoshores, Inc. Port Orange, FL (904) 767-6232. *S. alterniflora* clumps were planted 1.5' on center (=o.c.)

Source of subsequent assessment information: Mr. Steve Beeman, Ecoshores, Inc., Shoreline Associates, 3881 South Nova Road, Port Orange, FL 32127, (904) 767-6232.

References or reports:

Other species planted in addition to *Spartina alterniflora* : *Rhizophora mangle* was planted on 3-ft centers.

Percent vegetative cover attained by the planted marsh: 70% cover by *Spartina*; mangroves about 100% cover as of Aug-93

Was there an assessment made of animal utilization of the marsh? If so, which animals were surveyed, and when? Not assessed.

General comments about the marsh:

- The mangroves and *Spartina* have grown and spread, holding erosion in check and covering the shoreline. There was partial protection of the planting site by a rock revetment.

- Marsh name: Harpoon Louie's